Intelligent Transportation Systems (ITS)

2004 Annual Report of Miami-Dade Countywide ITS Efforts by Agency

August, 2004

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Introduction

What is the Intelligent Transportation Systems (ITS)?

The Intelligent Transportation System (ITS) applies advanced technology alternatives to transportation problem-solving, allowing for enhanced mobility along existing or newly constructed transportation facilities. It offers the precision of real-time information for more efficient and safe trip making. The ITS element as part of the Transportation Plan of Miami-Dade County offers a much needed complement to existing/planned transportation capacity and safety improvement projects.

Background: The initial ITS Plan for Miami-Dade County was approved by the Miami-Dade MPO Governing Board in February 1997. That plan primarily served as a general introduction to ITS, and provided an inventory of ITS-related projects and activities in the area. The Plan Update identified ITS "enabling" projects that are most critical in deployment of a regional ITS system, as well as other ITS "enhancements" to traditional transportation improvement projects and services that are location specific.

About this annual report: Since 1997, ITS stakeholders have been working to deploy different ITS projects which must be integrated into a single transportation system, or architecture. Currently a single, ITS architecture for the tri-county area has been defined. This report depicts stakeholders current and future ITS efforts and investments.

Sunguide Transportation Management Center at FDOT District 6

Intelligent Transportation Systems (ITS)

2004 Annual Report of Miami-Dade Countywide ITS Efforts by Agency

Florida Department of Transportation (FDOT) District 6

Travelers in the 1,000 square mile, tri-county area of Miami-Dade, Broward, and Palm Beach counties in South Florida experience some of the highest levels of congestion in the country. District Six of the Florida Department of Transportation (FDOT) in Miami took a decisive step forward in the long-range program to implement the recommendations of the Southeast Florida Intelligent Corridor System study. Since the completion of this study by Federal Highway Administration and FDOT in 1995, the Department embarked on a broad range of initiatives towards developing a regional and multimodal intelligent transportation network.

FDOT District 6 Current ITS Projects

- **SR 9A (I-95) Package B:** Installation of 15 dynamic message signs, 54 detector stations, 27 route diverters, 14 emergency stopping sites, and 22 ramp signaling sites. Project limits are from SR 5 (US 1) to Miami-Dade/Broward County Line. Package B approximate completion is January 2006.

- **Package C – ITS Video Wall & Consoles: An s**tate-of-the art video projection system, which includes communications equipment, and furniture to support both Sunguide and law enforcement staff operations within the Sunguide Transportation Management Center (STMC). Project is in conditional acceptance. Approximate completion date is August 5, 2004.Sunguide staff is presently operating in the STMC.

- **SR 826 (Palmetto Expwy) East/West ITS Deployment:** Installation of 50 detector stations, 9 cameras, and 4 dynamic message signs. Project limits are from Golden Glades Interchange to NW 122 St. Approximate completion for this project is January 2005.

- **SR 5 (US 1 Monroe County) ITS Deployment in the Upper Florida Keys:** Installation of 4 dynamic message signs, 7 cameras, and 2 detector stations. Project limits are from Florida City to Key Largo. This project will be constructed concurrent with SR 826 (Palmetto Expwy) East/West ITS Deployment. Its approximate completion date is January 2005.

- **Signal System Upgrade:** Upgrade of the Traffic Control System to an Advanced Traffic Management System. Project limits are throughout Miami-Dade County.

- **Traveler Information in the counties of Miami-Dade, Broward, and Palm Beach:** Provides uniform, multi-modal, real-time traveler and traffic information in the tri-county region under the Sunguide program. Initiatives started under this project include deployment of an Interactive Voice Response telephone system, website, and 511 Service. The 511

FDOT Current ITS Projects (Continued)

service received its two (2) millionth call in February 2004. A new record was established in March 2004 with 210,000 calls. The Department is now upgrading the website and 511 voice recognition feature to make them more user friendly. Both upgrades will be completed late Summer 2004. The Consumer Information Network (CIN) Project will begin Fall 2004. The CIN software will provide seamless transit trip planning information. The CIN Project will also provide voice recognition for the 511 service.

- **Service Patrols:** Constant patrolling of the expressways in the service area looking for stranded motorists, debris on the road, traffic incidents, etc. Expressways currently serviced by Service Patrols are I-95, I-195, I-395, I-75, Palmetto Expressway, Airport Expressway, Don Shula Expressway, Snapper Creek Expressway, Gratigny Expressway, and Dolphin Expressway.

FDOT District 6 FUTURE ITS Projects

- ***SR 5 (US 1 Monroe County) ITS Deployment from Key West to Key Largo: This is a design/build project that will be constructed concurrent with I-195 and I-75 ITS Deployments. 14*** *dynamic message signs (DMS) and 40 cameras will be installed. Estimated starting date is August 2004.*

- ***I-195 (Julia Tuttle Causeway/SR 112) ITS Deployment from I-95 to Alton Road:*** *This is a design/build project that will be constructed concurrent with SR 5 (US 1 Monroe County) from Key West to Key Largo and I-75 ITS Deployments. 6 cameras, 4 dynamic message signs, and 22 microwave vehicle detection stations (MVDS) will be installed. Project limits are from NW 11th Ave to Alton Road. Estimated starting date is August 2004.*

- ***SR 93 (I-75)ITS Deployment from SR 826/Palmetto Expressway to Miami-Dade/Broward County Line:*** *This is a design/build project that will be constructed concurrent with I-195 and SR 5 (US 1 Monroe County) from Key West to Key Largo ITS Projects. 7 cameras, 3 signs, and 30 microwave vehicle detection stations will be deployed. Project limits are from SR 826 to Miami-Dade/Broward County Line. Estimated starting date is August 2004.*

- ***SR 826/Palmetto Expressway ITS Deployment from SR 5/US 1 to NW 122 Street:*** *11 cameras to assist the Sunguide Transportation Management Center operators in the management on traffic incidents will be deployed. Estimated starting date is December 2004.*

Miami-Dade Transit Agency (MDT)

Miami-Dade Transit (MDT) is fully committed to the deployment and integration of Intelligent Transportation Systems (ITS). MDT has concentrated heavily this past year to ensure seamless integrations with not only county but regional implementations. Although, MDT has always made technology a priority in the implementation of business process, in Fiscal Year 2000 MDT has concentrated heavily in the infrastructure for future ITS deployment. The following are **current projects** that are part of the ITS Plan for Miami-Dade Transit.

MDT CURRENT ITS PROJECTS

- **PASS Sales on the Web:** Project to develop an application that will provide Transit riders the option to purchase transportation and parking passes via the internet using a credit or debit card. Will also provide subscription service where passes will automatically be sent to riders on a monthly basis.

- **Golden Passport/Employee ID Upgrade & Outreach Centers:** Project to upgrade the current EPI suite sued for deploying employee identification cards and Golden Passport cards to patrons. Deploy new hardware and software at new Transit Outreach Centers.

- **KIOSK (Phase 1):** This project is for three prototype KIOSKs, at Government Center, Dadeland South Station and the Airport.

- **Metro Mover Computer Upgrade (Bombardier):** This project will address the replacement of the existing central control computers with new, solid-state hardware. The present computers are obsolete and are becoming increasingly unreliable with age. Failures to the existing computers are no longer repairable due to the age and unavailability of component parts.

- **Computer Aided Dispatch Automatic Vehicle Locator CAD/AVL System Modifications and Enhancements:** Modifications and enhancements to improve the current business operation that will include: Automatic Schedule Download, Time Point Entry & Exit, Next Time Point Search, expansion of radio infrastructure to accommodate the increased fleet size, and Importing of standard countywide GIS files.

- **Electronic Wireless Signage Project (Rail & Bus):** Project to create Electronic Audio and Visual Signage at Metro Rail, Mover and Busway Stations integrated with Real Time information. This will enable MDT to have Emergency Management for Emergency Notification and Personal Security.

MDT Current ITS Projects (Continued)

- **Consumer Information Network (CIN):** Regional Trip Planning project will provide a new software system for the Miami Dade, Broward, RTA Tri Rail, Palm Beach, and South Florida Commuter Services region. Integrate Consumer Information Network with 511 telephone information system. This system will replace the existing Customer Information Services Trip Planning application and Complaints module currently in use.

- **Customer Information System (CIS) Innovative Voice Response (IVR) North East Upgrade:** Upgrade of North East Call Center which will entail the upgrade of the current automatic call distributor and interactive voice response system.

- **EJ Ward Fueling Upgrade – Lehman Center (Rail):** Install the EJ Ward system at the Lehman Center fuel island. Project includes installing network communications to the fuel island. Benefit will be the ability to track fuel dispensed for the Wayside equipment and all other vehicles at that site.

- Special Transportation System Replacement (STS/Paratransit): Project to Replace upgrade and centralize the Special Transportation System Computer Software System and Processes. This project also includes Web Accessibility and Voice Response Unit capabilities.

- **People's Transportation Plan Website for Procurement:** Design and deployment of a central web site listing all of the People's Transportation Plan related procurement solicitations.

- **Wireless Solution:** Project will create a wireless infrastructure for Miami Dade Transit. A wireless infrastructure will allow the use of wireless devices throughout all MDT sites. Benefits include mobility within MDT garages to manage fleets and operators more efficiently, mobility for supervisors to improve incidents tracking, mobile access to the Transit Operational System and CAD/AVL, and the EAMS that will allow inventory control and bar coding capabilities via handheld devices. This project will also expand the network to all new Rail and Bus way stations to accommodate future real time display of next train/bus arrivals.

- **Enterprise Asset Management System:** This project will implement and integrate Miami-Dade Transit's Material's Management, Maintenance, and Inventory into a re-engineered, manageable, and fiscally responsible system.

- **LAN Expansion to Rail (Phase 1):** Extend Ethernet Network to all Metro Rail stations to achieve communications connectivity. Each station will have the capability of transmitting real-time data back to the data center on such service aspects as scheduling, customer inquiries, rider-ship, safety issues and problem documentation. The data transfer is going to improve the capability of the communication and prepare for the Voice over IP communication.

MDT Current ITS Projects (Continued)

- **New Fare Collection:** Regional Automated Fare Collection System/Transit Employee ID/SMART CARD System: This project entails the implementation of a regional fare collection system onboard the bus fleet and new fare gates. The project will also include the deployment of Smart Cards to be used for fare payment and an employee ID that will integrate Bus Operation procedures, Fare Collection and the CAD/AVL system in one single login.

- **New Bus Garages:** Project entails planning and coordination for the implementation all technology needs for the new bus garages.

- **Where's the Train (Web):** Project entails developing a program to capture the train location data from the rail relays and the development of a web site displaying the train location.

- **Coral Way Voice Switch Replacement (I3):** Implementation of a new PBX, Voicemail, and ACD functionality for Miami Dade County Paratransit division. The I3 solution will provide Paratransit and Miami Dade Transit with a robust call and voice-processing platform capable of utilizing the latest technology in intelligent network services and data processing integration. Project implementation due date May 2004

- **Re-vamp Bus Accidents / Incidents Reporting:** Analyze Office of Safety and Security automation needs and design a new Bus Accident Incident Reporting application that will meet their requirements.

- **Daily Logs Replacement:** Re-write the Daily Logs system to provide the users with more functionality in a more user friendly system platform.

- **Random Selection of Applicants:** Develop application to randomly select job applicants from the Resumix system.

MDT FUTURE ITS Projects

- **Bus Supervisor Mobile Information System:** Develop application that will automate the Bus Supervisor field work processes.

- **Section 15 Database Replacement (NTD):** Analyze the National Transit Database reporting process and develop centralized database so that users have easy access to the required data.

- **Positive Attendance Control Evaluation (PACE) Re-write:** Analyze and develop a new Positive Attendance Control Evaluation system.

MDT Future ITS Projects (Continued)

- **Work Force Analysis Re-write:** Analyze user needs and re-write the Work Force Analysis report to meet requirements.

- **WEB Enhancements:** Complete an assessment of the current Transit portal and Transit Intranet and make necessary updates and redesign the sites where necessary.

- **Electronic Document Management System (EDMS):** Creation of an enterprise document management system. Initial phase will entail analyzing business processes and creating a centralized data repository. This will include scanning all of the as-built drawings and establishing a process for storing, copying, and modifying the as-builts.

- **Metro Mover Software Upgrade / Replacement:** Project will upgrade the existing software for the Metro Mover System and correct all pending issues between the Metro Mover system and Central Control. Will reduce maintenance costs and update software with the latest release.

- **LAN Expansion to Rail Station (Phase 2):** Will enable centralized computer communication at all Metro Rail Stations. The existing Sonet system, which is the communication infrastructure within the Metro Rail systems, must be increased and modified to meet manufacturer and industry recommended specifications. Project will allow the seamless integration of all systems embedded in the Metro Rail system to communicate with the central communications room, e.g., the data transfer for fare collection information and any other system integration needed.

- **Disaster Recovery:** Project ensures that Miami Dade Transit is able to continue business after a disaster. Will involve data redundancy, backup and recovery, and critical hardware redundancy.

- **Enterprise Data Modeling, Data Mining, Warehousing, & Reporting:** Project will create a much needed centralized data repository that will store all critical Transit data in the required format for unified and consistent reporting throughout Transit which will eliminate the need for access to multiple systems. Create a Real Time reporting structure from the different systems for on time performance and real time trip planning. This enables Transit to have Information Management and Archived Data User Services.

- **Computer Aided Dispatch Automatic Vehicle Locator CAD/AVL Replacement System:** This system will replace the current CAD/AVL system with an integrated system that will meet the needs of MDT. This will be a comprehensive system integrating the needs for automatic vehicle location, bus

MDT Future ITS Projects (Continued)

operations, and security and maintenance areas.

- **Transit Information on Handhelds:** Will allow the public to download transit schedules and route maps to personal handheld devices via the web. Benefit – riders will have access to the Transit schedules on their personal handheld devices at anytime.

- **Transit Safety Business Analysis & Application Upgrade:** Conduct an analysis of the business processes and current applications within the Safety & Security Division to determine business re-engineering and automation needs. Once the analysis is complete, requirements, definitions, and implementation will be done.

- **Enterprise Resource Planning ERP Analysis:** Conduct an analysis of business processes used with the current Financial Systems (FAMIS) applications to determine business re-engineering and automation needs. The analysis will integrate with the existing countywide ERP initiative to replace the FAMIS system, reduce duplications, and produce efficiencies. Once the analysis is complete, requirements, definitions, and implementation will be done.

- **Human Resources Business Analysis & Applications Upgrade:** Conduct an analysis of the business processes and current applications within the Human Resources Division to determine business re-engineering and automation needs. The analysis will integrate with the existing countywide Human Resources initiative to reduce duplications and produce efficiencies. Once the analysis is complete, requirements, definitions, and implementation will be done.

- **Special Transportation Services (STS) – Mobile Data Terminals:** Project to install Mobile Data Terminals (MDT) in the Special Transportation Services vehicles. Terminals will interface with the STS software to keep track of vehicle location, schedule adherence, driver manifest, and communication to the dispatch facility. MDTs will also interface with the Transit Smartcard fare collection system. Benefits include real time trip cancellations and additions, reduced radio communications, and real time vehicle location information.

- **Geographical Information Systems Layer Development & Data Integration:** Project to create Production Transportation GIS Layers with applicable applications for maintenance and integrate data with Geographical Information Systems.
  - Bus Stop Maintenance Application
  - Sidewalk Layer
  - Pre-Trip Travel Information
  - Route Guidance
  - Ride Matching and Reservation

MDT Future ITS Projects (Continued)

- **Kiosk Expansion (Phase 2):** Project to add internet capability to the 3 KIOSKS from Phase 1 (Government Center, Dadeland South Station and Airport). The public will be able to access transit information along with regional trip planning at the three rail stations.

- **Kiosk Expansion (Phase 3):** Project to create a request for proposal (RFP) and deploy Kiosk technology at all rail stations and through our Transit locations as needed.

- **Scheduling Software Interface Module (Blockbuster):** Interface module that will provide enhance features to the current Scheduling Software.

- **Automated Passenger Counter (APC):** Implement and Integrate automation of passenger counter devices that will automate the data collection of passenger boarding and alighting by time and location.

- **Planning Software:** Service planning software that will provide the tools required to analyze critical data used for designing new fixed route service or modifying existing service. This will allow Transit to design and schedule more efficient routes.

- **Transit Operation Software (TOS):** Upgrade Miami-Dade Transit's Operational Systems and Processes. Will provide a comprehensive package with new features such as; advanced automated bidding functions, daily dispatch, workforce management, employee incentives, complaints, commendations, timekeeping, and payroll functions.

- **Real Time Vehicle Maintenance Monitoring Interface (Bus Diagnostics & New Development):** This system will provide vehicle maintenance divisions with automated vehicle equipment monitoring in order to perform preventive maintenance. This system will also interface with the Enterprise Asset Management System to allow real time work order creation and notification. On board devices will have the ability to diagnose engine problems and generate data.

- **Transit Communication/Network Upgrades:** This project is to upgrade Transit's Network/Communication System infrastructure to follow ITS Architecture technology and County Standards. This includes radio, wireless technologies, CDPD (Cellular Digital Packet Data), and voice/data.

FIELD ENGINEERING & SYSTEMS MAINTENANCE (FESM) IT related projects:

- **Wireless Closed Circuit Television Expansion:** Expand the infrastructure for Closed Circuit TV on Mover and Rail vehicles. Mover vehicles specifications are under development. Video surveillance cameras will integrate with the current enterprise network infrastructure to assist Safety and Security. CCTV for Rail vehicles is pending funding.

- **Automatic Voice Annunciator System:** Install/upgrade electronic announcement system for Bus/Rail/Mover vehicles. This includes interfacing with wireless electronic visual display systems. Mover vehicles specifications are under development. Rail vehicles are pending funding. Upgrade the Metro Rail & Metro Mover Central Control Station Public Announcement (PA) Systems

- **Upgrade Metro Mover Fiber Optics Infrastructure:** Upgrade and expand the communication's infrastructure for our Metro Mover system

**** Miami-Dade Transit is creating a Formal ITS Plan that will integrate current systems with future ITS initiatives.*

Intelligent Transportation Systems (ITS)

Status Report
August 2004

Dante B. Fascell PORT of Miami-Dade

SEAPORT CURRENT ITS PROJECTS

- **Stolen Automobile Recovery System (STARS)** – scans outgoing shipping containers to detect stolen autos. This system will be upgraded in the future to identify additional types of contraband cargo, both inbound and outbound, using automated systems that will not impede the traffic flow.

- **Variable Message Signs** – expedites traffic flow on the Port by advising drivers which lanes and terminals to access for cargo or for specific cruises.

- **WEB Information at:**

  http://www.miamidade.gov/portofmiami

  provides on-line cruise information with a direct link to the cruise lines, contact information for all shipping lines operating at the Port of Miami, web links to maritime related agencies, as well as a full copy of the Port of Miami Terminal Tariff #10.

- **Parking system** – provides several multi-level parking garages with an integrated post-payment cruise customer parking system, which includes credit card processing facilities. System also integrates data from the Port permit system and the identification badge (ID) system to provide access to parking facilities for authorized users.

- **Gateway Security Access Systems** – Improvements currently being implemented on the Port will provide automated screening at unmanned gates, to allow only authorized access to secured cargo areas on the Port.

Miami-Dade County Public Works Department

- Miami-Dade Public Works operates the oldest and most successful ITS system in Miami-Dade County -- The Traffic Control System. Over 2000 of Miami-Dade's over 2500 traffic signals are online. Traffic signal operations are changed throughout the day to maximize the safety and flow of traffic on Miami-Dade's arterial network.

Work on the Miami-Dade ATMS Project slowed during 2003 as the originally allocated project funds ran out. In early 2004, the County Attorney's Office and the System Manager's lawyers began negotiating the terms of the termination of the System Manager's contract. The County does not intend to allow this setback to stall the project and is currently preparing an RFI for distribution to other potential system managers. Their responses are expected to facilitate the expeditious selection of a new System Manager who has an off-the-shelf system already operating in another major metropolitan area which they can easily and quickly install in Miami-Dade County starting early next year.

- Miami-Dade Public Works also operates a toll card system on the Rickenbacker and Venetian Causeways. Contact Gaspar Miranda for details.

- Miami-Dade Public Works is also in the middle of a major project to develop an Advanced Traffic Management System (ATMS). In the coming decade, this system will take over traffic signal control from the TCS, squeeze additional capacity out of the existing roadway network, reduce side street delays on many approaches to major intersections, and efficiently interface with other ITS systems at MDTA and FDOT.

Miami-Dade Expressway Authority (MDX)

Project Descriptions, Costs, and Schedules for Fiscal Years 2005 through 2009

- **Project # 10002** – SR 836 Communications & Incident Management/Surveillance

  This is a Design-build project consisting of design, construction, and installation of communication infrastructure along SR 836 from the Florida's Turnpike Homestead Extension (HEFT) to FDOT's I-95. As part of a Federal (FHWA) earmark appropriated to MDX, in partnership with FDOT, MDX is deploying a series of Intelligent Transportation Systems (ITS) components that will integrate the FDOT SunGuide Transportation Management Center (SGTMC) with the MDX Transportation Management Center (TMC) for the management and operation of the SR 836 Advanced Traffic Management System (ATMS). The ATMS components, which include incident management, network surveillance, and information dissemination, will be integrated with the existing SunGuide software such that they will become a seamless extension to the SunGuide surveillance system. This project will also provide the FDOT SGTMC a direct fiber optic connection to the MDX TMC for information sharing and emergency operational control of MDX's ATMS. This project is currently under construction and the estimated completion date is February 2005.

- **Project # 10005** – Accident Investigation Sites & Location Reference Markers

  The Accident Investigation Sites and Location Reference Markers project will consist of three parts: construction of Accident Investigation Sites on SR 874; installation of Location Reference Markers (LRMs) every 2/10ths of a mile with Begin/End route markers throughout MDX's entire roadway system; and, the installation of Move-It Signs. These ITS deployment initiatives are to help reduce incident related congestion and to aid in identifying the location of incidents for dispatch of emergency response personnel and the MDX Road Rangers Service Patrols. The estimated completion date for this project is August 2004.

- **Project # 10006** – MDX Transportation Management Center (TMC)

  The MDX Transportation Management Center (TMC) is to be housed in the MDX Headquarters Facility. The TMC will be MDX's central operations center for collection and dissemination of information regarding freeway management, incident management, electronic toll collection, regional traveler information (via 511), and emergency services management. MDX, as a partner of the State and in an effort to standardize TMCs across the State of Florida, will be implementing the Statewide Transportation Management Center Software Library System (SunGuide), which will

MDX Future ITS Projects (Continued)

be used to operate the ATMS of MDX's entire roadway system. The estimated completion date for this project is October 2005.

- **Project # 10007** – SR 112 ITS Freeway Management a.k.a SR 112 Communications & Incident Management/Surveillance

  This is a Design-build project proposing design, construction, and installation of communication infrastructure and ITS devices along SR 112 from the Miami International Airport (MIA) to FDOT's I-95. As part of a Federal (FHWA) earmark appropriated to MDX, in partnership with FDOT, MDX is deploying a series of Intelligent Transportation Systems (ITS) components that will integrate the FDOT SunGuide Transportation Management Center (SGTMC) with the MDX Transportation Management Center (TMC) for the management and operation of the MDX Advanced Traffic Management System (ATMS). This project proposes integration of the MDX system with FDOT's I-95 fiber optic system for utilization in sending video and traffic device data back to the MDX Transportation Management Center. The estimated project completion date is April 2006.

- **Project # 10008** – SR 874 ITS Freeway Management a.k.a SR 874 Incident Management/Surveillance

  This is a Design-build project proposing design, construction, and installation of wireless Closed-Circuit Television (CCTV) cameras along SR 874 from the Florida's Turnpike Homestead Extension (HEFT) to FDOT's SR 826 (Palmetto Expressway). As part of a Federal (FHWA) earmark appropriated to MDX, in partnership with FDOT, MDX is deploying a series of Intelligent Transportation Systems (ITS) components that will integrate the FDOT SunGuide Transportation Management Center (SGTMC) with the MDX Transportation Management Center (TMC) for the management and operation of the MDX Advanced Traffic Management System (ATMS). This project proposes integration of the MDX system with the Turnpike Enterprise's fiber optic system for utilization in sending video data back to the MDX Transportation Management Center. The estimated project completion date is February 2006.

- **Project # 10009** – SR 924 ITS Freeway Management a.k.a SR 924 Communications & Incident Management/Surveillance

  This is a Design-build project proposing design, construction, and installation of communication infrastructure and ITS devices along SR 924 from FDOT's SR 826 (Palmetto Expressway) to NW 27th Avenue. As part of a Federal (FHWA) earmark appropriated to MDX, in partnership with FDOT, MDX is deploying a series of Inte-

MDX Future ITS Projects (Continued)

lligent Transportation Systems (ITS) components that will integrate the FDOT SunGuguide Transportation Management Center (TMC) for the management and operation of the MDX Advanced Traffic Management System (ATMS). This project proposes integration of the MDX system with FDOT's planned SR 826, I-75, and I-95 fiber optic systems for utilization in sending video and traffic device data back to the MDX Transportation Management Center. The estimated project completion date is April 2006.

- **Project # ITS-010** – SR 878 Communications & Incident Management/Surveillance

  This is a Design-build project proposing design, construction, and installation of communication infrastructure and ITS devices along SR 878 from MDX's SR 874 to U.S. 1. This project proposes integration of the MDX system with the Miami-Dade County fiber optic system along U.S. 1 for utilization in sending video and traffic device data back to the MDX Transportation Management Center. The estimated project completion date is April 2006.

Miami-Dade Aviation Department (MDAD)

Information Systems and Telecommunications Division (ISD)

Airport Strategic Projects

MDAD ISD is entering the 21st century with the most comprehensive set of challenges in its history. MDAD is in the midst of a 4.8 billion dollar Capital Improvement Program (CIP). While many of the projects in this program are characterized by brick and mortar, a large family of IT specialty systems are required to support and operate these new facilities. In February of 2002 the Telecommunications section began absorbing the airport telecommunications infrastructure resulting from the purchase of these assets and support operations from NextiraOne. These are a new family of business operations for the department.

The impact of September 11th has and will add to the complexity of security initiatives underway and more are expected to come as the nation's airport security systems are shaped by new national policy. We are also faced with the requirement to replace several "legacy" systems that have outlived their operational life and no longer support the continued expanding needs of the department. These needs for new systems and processes are in addition to the normal day-to-day operational needs of supporting our user community. This includes 1,200 PC workstations, an airport wide data network and traditional "back office" applications. Following are the projects, which are either currently underway or are being considered. No attempt is made here to prioritize or indicate the magnitude of effort of these initiatives.

Airport ITS Applications

- **Document Management:** Project to capture administrative documents for later browser access. – Completed system, deployment to all divisions ongoing

- **Equipment Asset Management System (EAMS):** Project to replace Legacy Work Order and Inventory Control System. The CIO's office is heavily involved with this project.

- **Employee Evaluation Tracking:** Completed project to provide reporting of evaluations upcoming and past due.

- **Matrix Security Access Control (Frontier) Upgrade:** Project replaces present security door access control system, which is beyond its useful life. 90% completed

Airport ITS Applications (Continued)

- **Intransit Baggage Transit Facility (ITBF**): Completed this project which provided enhanced capabilities for control of passenger luggage arriving from international flights that will be outbound to another international location.

- **New Financials**: Project replaces existing Financial System. The CIO's office is heavily involved with this project.

- **Property Management System (Prop Works)**: Completed plan to upgrade to version 5.3 - Project to automate the manual processes for the management of commercial agreements with airport tenants.

- **Parking Revenue Control**: Completed project -- provided financial controls and reporting for the parking revenue received from our parking garages.

- **AOA barcode vehicle access system**: Require all vehicles entering the AOA(Airfield) to have a valid bar-coded decal which will be scanned in order to determine access.

- **Directors "Master Log Report" system**: Will track and report on all incidents and activities at the divisional operational levels and escalation will occur up to the Director level.

- **Websphere Security System**: converting three current security systems(ID Badging, AOA Training, and Safety Violations) to Oracle web based technology.

- **Capital Im provement Program (CIP)**

  19 Rooms: Project to construct a series of equipment rooms for the new Security network.

  AOIS: Airport Operations Information System – This project will establish a centralized information repository for flight operations and other related operations data.

  VIDS Displays: Visual Information Display Systems – These are a family of systems, which display operations information to the public, airline operators and related support agencies. Most commonly known is the Flight Information Display System (FIDS), which displays flight information throughout the terminal to the public and the www-miami-airport.com website.

Airport ITS Applications (Continued)

BMS: Building Management System – This project will install building, and related supporting systems, safety and operational control information.

CMS: Cable Management System – Project to record and control telecommunications cable infrastructure data.

CUTE: Common Use Terminal Equipment – This project will deploy airport owned equipment for use by air carriers in the operation of ticket counters and gates. It provides the ability for shared use facilities and equipment.

Help Desk: This project will deploy the systems and supporting structure for MDAD and it's customers to report and obtain support of office and operations equipment. - Completed

Paging/PA: This project will provide the capability for paging and public address capabilities for the terminal.

Point of Presence: Project to provide a single MDAD owned connection path for commercial telecommunications providers to their end customers.

Premise Distribution System: Project to deploy the wiring and network connections for the telecommunications infrastructure.

Telecom. Support (Nextira) Spec.: Project to create and process an RFP for the future telecommunications support services presently under contract to NextiraOne. - Completed

Visual Paging: Project addresses ADA requirements for providing information to those who are impaired.

Work Arounds: These are a series of alternatives to provide continued services in the event of construction or other delays in terminal services.

PC Support Services

Purchase SSL certificate

Web Access for Outlook - – Completed Web Access for Outlook was upgraded to Web Access 2003

Airport ITS Applications (Continued)

ISP Change over from Genuity to ITD

Upgrade internet access circuit From Single T1 to Burstable D53 and add to Bellsouth SmartRing redundancy.

Consolidate SQL Servers and Apps. – Completed and upgraded to SQL2000
Upgrade SmartFilters (url blocking)

Windows 2000 (including Office 2000) deployment -Completed
Deployment of Network printers (IBM Info Printers) - Completed
Move from Novell Apps. to Windows 2000 Server - Completed
Eliminate I drive -Completed

Convert all Network Printer Queues Objects to IP - Completed

Remove all IPX from network - Completed

Upgrade Firewall – Completed

Completed Upgrade of MS Exchange 2000 e-mail to Exchange 2003.
Completed Implementation of server hardware redundancy for e-mail system

Completed implementation of Anti-virus defense system(including automated virus clent upgrades)

Deploy Windows XP Profesional(Including Office throughout the Airport)

Provide e-Learning via the Web

Upgrade Network Security to include high availability Firewall configuration

Implement full intrusion detection system(Network Firewall)

Florida Turnpike Enterprise

- **SunNAV Phase I Fiber Project (190750-1-52-01)**

  This project has installed 68 miles of fiber optic cable and eight pan-tilt-zoom CCTV cameras from MP 7 to MP 75 along the Turnpike mainline. The fiber optic cable integrates five Turnpike DMSs within the project limits with the Pompano TMC. The project also provides a fiber optic drop for possible future connection to the Boca Tolls Data Center and allows for future interfaces to FDOT Districts 4 and 6. The project is designed to accommodate future vehicle detector stations (VDS) every half-mile and cameras every mile within the project limits. The Low-Bid Design-Build procurement method was utilized Construction, Engineering, & Inspection (CEI) Consultant was responsible for the inspection of the project construction. Notice to Proceed was given to the Contractor in August 2002. Construction was started in January 2003. All installation, testing, integration, and documentation for the project were completed on May 4, 2004.

- **Traffic Management Centers (190717-1-52-03/04/05/08)**

  The Pompano and Turkey Lake TMC facilities are staffed 24-hours a day, 7-days a week. Incident management is accomplished utilizing twenty CCTVs, nine HARs and twenty-two DMSs along the Turnpike mainline. TMC operators work closely with FHP Troop K and other governmental agencies to detect, verify, and mitigate incidents. Advanced Traveler Information System operators at both TMCs work in close coordination with Turnpike Road Rangers through an AVL system and Nextel “direct connect” radios. The TMC’s Turnpike Operations newly created position of Incident Coordinator works closely with Roadway Maintenance and Construction. The Florida's Turnpike Enterprise is also part of the SunGuide^{SM} 511 Advanced Traveler Information System (ATIS) partnership in Miami-Dade, Broward, and Palm Beach Counties.

- **Automated Vehicle Location (AVL) System**

  This project integrates the existing Turnpike Road Rangers' AVL system with the TMC facilities. The project has two primary objectives. First, the AVL system will provide location information to the TMC enabling more efficient response to incidents on the Turnpike by dispatching the closest available mobile asset(s). Second, the AVL system will provide the TMC with accurate vehicle speed of Turnpike monitored vehicles to help determine traffic flow. The AVL system will collect vital information and deliver this information to the TMC in "real time." AVL has been installed and implemented at both the Turkey Lake and Pompano TMC facilities.

Turnpike ITS Projects (Continued)

Portable Roadside Readers

The Turnpike's Portable Roadside Reader (PRR) is a self-contained, trailer-mounted SunPass™ transponder reader. This equipment was designed for SunPass™ transponder data collection and extraction at specified geographical locations. In September 2001, four PRRs were provided to the Turnpike. Two of the PRRs are based at the Pompano Beach Maintenance Yard, and two are based at the Orlando South Maintenance Yard. Turnpike Traffic Operations has made the PRRs available to other agencies that require traffic data. The units have been actively deployed since January 2002.

Microwave Camera Project

This project expanded upon the microwave communication part of the project that did the Leesburg Traffic Management System. This project installed cameras on 8 additional Turnpike microwave towers between southern Miami-Dade County and the Orlando area. The and used the microwave system is used to transport video and control to and from the Pompano and Turkey Lake TMCs facilities. Fiber links at two of the towers (Sunrise and Orlando West) weare used to connect the TMC facilities to the microwave system. This brings the total number of cameras installed on the Turnpike's Microwave System to 10. Completion: June 2004

Traffic Management Dispatch Operator

Florida's Turnpike Enterprise TMC has placed Turnpike TMC dispatch operators at the FHP Troop K, Lake Worth Dispatch Center between 6 AM and 10 PM, five days a week. Turnpike TMC dispatch operators work in conjunction with the existing Turnpike TMC facilities in Pompano Beach and Orlando. The coordination between Turnpike TMC dispatch operators and FHP dispatchers and troopers enables the TMC to assume a more proactive role in the management of incidents along its roadways in terms of emergency verification, emergency response, dissemination of traveler information, and other agency notifications. This accurate and timely exchange of information will result in the enhanced operation of the Turnpike's ITS devices and more efficient resources sharing. There is a staged implementation plan that builds on past successes. The Lake Worth Dispatch Center facility expansion plans are currently being developed with the intent of the TMC operator having a minimum of one assigned console and video wall control.

Tunrpike Future ITS Projects (Continued)

- **SunNav[SM] ITS South Florida Part A ITS Improvements (406119-2-32-01)**
  The project will include fiber optic cable, DMS, CCTV, vehicle detection and HAR deployment on the Southern HEFT from MP 0 to MP 7 and the Golden Glades Spur from MP 0X to MP 4X. The project will also deploy vehicle detection technologies in Miami-Dade, Broward and Palm Beach Counties and will complete the CCTV installation in the Phase I project limits within Palm Beach and Miami-Dade Counties. Concept report development began in April 2004. The Turnpike is planning to hire a design consultant in March 2005. Approx. Completion: 2007

- **Vehicle Detector Station (VDS) System (406123-1-52-01)**
  The goal of this project is to install a vehicle detection technology throughout the Florida's Turnpike Enterprise roadway system to determine vehicle vehicular speeds, density, and volumes. This information will assist the TMC facilities in identifying congested areas along the system and allow them to take appropriate actions such as posting DMS or HAR messages. Although a single detection technology has not yet been chosen due to the rapid changes in available technologies, the objective of the Vehicle Detector Station System is to provide maximum coverage throughout the Florida's Turnpike Enterprise roadway system. This will be accomplished through designing and installing new vehicle detector stations along roadways where they do not exist. The Turnpike will be hiring a system designer in early 2005 and a contractor in early 2007. Approx. Completion: 2007

- **Video System (406124-1-52-01)**
  The objective of the Video System project is to design and install CCTV monitoring cameras in those areas within the Enterprise roadway system that do not already have CCTV coverage. In other words, the Video System project is designed to fill in the CCTV coverage gaps along the roadway in order to provide 100 percent video coverage of the roadway to the TMC facilities. The Turnpike will be hiring a system designer in early 2005 and a contractor in early 2007. Approx. Completion: 2007